CPE Annual Index, Vol. 51, 1970

Subject Index

(HTS denotes Heat Transfer Survey, 1970)

ACHEMA:
- exhibition 1970 (June) 5, (July) 7
- preview (June) 37
- review (Sept.) 73

Acoustic emission in pressure vessels (Oct.) 9
Acrylic:
- fibre plants, filters for (Dec.) 73
- fibres—*Process Survey* (Sept.) 107

Alkalis and chlorine in the USSR (Sept.) 63
Ammonia oxidation, catalyst for (Dec.) 7
Ammonia technology (Oct.) 5
Analysis:
- automatic, in fertilizer plants (May) 62
- on-line (May) 80

Anti-corrosion:
- materials and treatments (Feb.) 68
- techniques (Feb.) 84

Applications of epoxy resins (Feb.) 76
Automatic:
- analysis in fertilizer plants (May) 62
- control of batch distillation columns (May) 55
- pressure filter (Dec.) 67

BATCH distillation columns, automatic control of (May) 55
Borosilicate glass process plant (Feb.) 101
Brickmaking, powder technology in (Jan.) 75
Bursting discs in process plant protection (Mar.) 43
Butadiene extraction—*Process Survey* (Mar.) 65

CASSITERITE flotation (April) 7
Catalysts:
- for ammonia oxidation (Dec.) 7
- handbook (Sept.) 7
- steam reformer, carbon removal from (Mar.) 7

Catalytic *versus* hydrocracking (July) 5
Cells, fuel—where now? (Sept.) 102
Chemical industry:
- growth of the UK (April) 5
- water in (June) 42

Chemicals growth in Holland (May) 7
Chlorine and Alkalis in the USSR (Sept.) 63
Coal:
- blending (Mar.) 7; *see also* (April) 108
- research (Dec.) 7
- slurry pumping (July) 86

Code cases for pressure vessels (Oct.) 7
Company Profile:
- British 'Rema' Manufacturing Co. Ltd. (Jan.) 79
- James A. Jobling & Co. Ltd., Process Plant Division (Feb.) 95
- William Boulton Ltd. (April) 111
- Stockdale Engineering Ltd. (May) 92
- Hydronyl Ltd. (June) 147
- The Lurgi Companies (Oct.) 93
- Courtaulds Engineering Ltd. (Dec.) 81

Comparison of heat exchange surfaces *(HTS)* 31
Compensators, tied, in pressurised piping systems (Nov.) 72
Compressor design, trends in (June) 123
Computer control of grinding mill (Jan.) 45
Control:
- automatic, of batch distillation columns (May) 55
- of grinding mill by computer (Jan.) 45
- on-line, of olefine plant (May) 49
- progress in process (May) 65

Coolers, design of coil-in-tank (April) 89
Cooling towers (Oct.) 7
Copper:
- hydrometallurgy, trends in (Jan.) 65
- refinery electrolytes, $NiSO_4$ crystallisation from (Nov.) 86
- welding (Aug.) 7

Cost indices, revision of (Aug.) 59
Cr/Ni alloys (June) 140
Crystallisation:
- equipment review (Nov.) 67
- $NiSO_4$ from copper refinery electrolytes (Nov.) 86
- problems of (Nov.) 55

Crystallisers, scraped-surface (Nov.) 59
Cyclic processes, optimisation of simple
- Part 1 (Mar.) 79
- Part 2 (April) 103

DESALINATION costs (Dec.) 5
Design:
- of agitated coil-in-tank coolers (April) 89
- of fluidised beds with internal baffles (June) 127

Desulphurisation of fuel oil (Aug.) 5
Detergents, synthetic powdered—*Process Survey* (April) 63
Distillation:
- automatic control of batch columns (May) 55
- technology, trends in (June) 115
- tray design (June) 7

Dust collection process, high-throughput (Feb.) 99
Dutch chemicals growth (May) 7

EFFLUENT, pickle disposal (Jan.) 77
Elastomers in process plant (Feb.) 73
Electric surface heating *(HTS)* 41
Empirical nomograms in plant start-up (Aug.) 50
Emulsion polymers—*Conference Report* (May) 88
Epoxy resins, applications of (Feb.) 76
Equipment review:
- crystallisation (Nov.) 67
- filtration (Dec.) 60

Evaporators, thin-film, residence-time control in (Nov.) 63
Explosion:
- bonding (Feb.) 9
- cladding (Dec.) 3
- in oil storage tank, theory for (Dec.) 5

FABRICATION:
- industry reforms go ahead (Oct.) 69
- products identification chart (Oct.) 70

Fertilizer:
- and magnesium (May) 7
- distribution by rail (May) 9
- know-how, selling (June) 9
- logistics (Mar.) 9

Fibres, acrylic—*Process Survey* (Sept.) 107
Fibrous filters, pressure drop across (Dec.) 68
Filament-wound equipment for the process industries (Feb.) 81
Filters:
- automatic pressure (Dec.) 67
- fibrous, pressure drop across (Dec.) 68
- for acrylic fibre plants (Dec.) 73
- new, for the chemical and process industries (Dec.) 60
- sintered metal (Dec.) 57

Filtration, special techniques (Dec.) 53
Finned tube in fired heaters *(HTS)* 47
Fire:
- engineering (Mar.) 9
- prevention of flammable liquids with plastic balls (Mar.) 51
- safety, Division I (Mar.) 5

Fired heaters, finned tube in *(HTS)* 47
Flammable liquids, new legislation for (Mar.) 55
Flow:
- graph models of thermal processes *(HTS)* 49
- of granular material down chutes (May) 82

Fluid dynamic design problems of mixed-flow pumps and fans (July) 79
Fluidised-bed design with internal baffles (June) 127
Formaldehyde, *Formox* process (April) 100
Friction welding (Nov.) 7
Fuel:
- cells—where now? (Sept.) 102
- oil desulphurisation (Aug.) 5

Fungicides, Japanese (Feb.) 9
Furnace:
- rolling-mill reheat (July) 7
- technology *(HTS)* 52

GLASS, borosilicate, for process plant (Feb.) 101
Glass-fibre, demand by 1972 (May) 7
Granular materials, flow down chutes (May) 82
Graphite for heat exchange plant *(HTS)* 59
Grinding mill, computer control of (Jan.) 45
Grp:
- equipment for the process industries (Feb.) 81
- pipe by continuous process (July) 90

HEAT exchange surfaces, comparison of *(HTS)* 31
Heat exchangers:
- graphite for *(HTS)* 59
- manual (Aug.) 7
- new industrial *(HTS)* 27

Heating:
- electric surface *(HTS)* 41
- systems, safety at high-temperature *(HTS)* 54

Heat-shrinkable pipe insulation (Feb.) 89
Heat transfer:
- across rectangular cavities *(HTS)* 35
- review of 1969 literature *(HTS)* 19

Helical gear pumps, development of (July) 85
High-nickel weld overlays (Oct.) 55
High-throughput dust collection process (Feb.) 99
Holland, chemicals growth in (May) 7
Hydrocracking *versus* catalytic cracking (July) 5
Hydrodynamics of liquid/liquid spray columns
- Part 1 (Nov.) 79

Hydrogen attack on pressure vessels (Oct.) 66
Hydrometallurgy of copper, trends in (Jan.) 65

IEA exhibition preview (May) 58
Information, scientific and technological (June) 33
Instrumentation, safety developments in (Mar.) 47
Insulation, heat-shrinkable for pipe (Feb.) 89
Ironmaking-SL/RN direct reduction process (Jan.) 55

LEAD:
- dispersion-strengthened (April) 9
- pumping of (July) 87
- /zinc forecasts (Oct.) 7

Light soda ash from caustic solution (June) 139
Liquid/liquid spray columns, hydrodynamics of
- Part 1 (Nov.) 79

Liquid membrane separations (Nov.) 5

MAGNESIUM and fertilizers (May) 7
Mass transfer and solidification (Jan.) 59
Mineral processing—*Conference Report* (Jan.) 51
Mixer, static (June) 119
Molybdenum alloying (Feb.) 7

NATURAL gas:
- cheaper (July) 7
- feedstock (Jan.) 9
- separation of N/He from (June) 137

NEDO—outlook from (Sept.) 5
Ni/Si base alloy for sulphuric acid (Sept.) 57
$NiSO_4$ crystallisation from copper refinery electrolytes (Nov.) 86
Nickel:
- and high-nickel alloys (Feb.) 61
- and molybdenum developments (Jan.) 9

Nitrogen/helium separation from natural gas (June) 137
Nomograms in plant start-up (Aug.) 50

OLEFINE plant, on-line control of (May) 49
On-line:
- control of olefine plant (May) 49
- petrochemical plant control (July) 88

Optimisation of simple cyclic processes
- Part 1 (Mar.) 79
- Part 2 (April) 103

Oxidation in organic chemistry—*Conference Report* (Jan.) 69
Oxo synthesis gas—*Process Survey* (Aug.) 53

PHARMACEUTICALS, tabletting of (Aug.) 43
Pickle effluent disposal (Jan.) 77
Pickle liquor, microbial process for (Dec.) 5
Pipelining, slurry (Nov.) 9
Piping systems, tied compensators in pressurised (Nov.) 72
Plastic:
- balls for protecting flammable liquids (Mar.) 51
- composites in chemical plant (Feb.) 63

Pneumatic conveying (May) 76
Pollution control (Aug.) 60
Polyester fibres:
- for tyres (April) 7
- —*Process Survey* (July) 55

Powder technology in brickmaking (Jan.) 75
Pressure drop across fibrous filters (Dec.) 68
Pressure vessels:
- acoustic emission in (Oct.) 9
- code cases for (Oct.) 7
- codes for (Oct.) 77
- design of (Oct.) 81
- hydrogen attack on (Oct.) 66
- standardisation (Oct.) 61
- (and (Jan.) 5; (May) 5)

Process plant—Mintech report (Jan.) 7
Process Surveys:
- acrylic fibres (Sept.) 107
- butadiene extraction (Mar.) 65
- detergents, synthetic powdered (April) 63
- oxo synthesis gas (Aug.) 53
- polyester fibres (July) 55

Productivity and cost indices, revision of (Aug.) 59
Progress in process control (May) 65
Project engineering management (May) 71
Ptfe-lined pipe (Feb.) 93
Pump breakdowns (July) 75
Pumping:
- of coal slurries (July) 86
- of lead (July) 87
- systems, special chemical and power engineering (July) 77

Pumps:
- and fans, fluid dynamic design problems of mixed-flow (July) 79

Pumps: *(continued)*
and valves, demand forcasts for (Nov.) 7
development of helical gear (July) 85
for low-suction pressures (July) 83
for chemical and process industries (July) 65

REGULATIONS for flammable substances (Mar.) 55
Residence-time control in thin-film evaporators (Nov.) 63
Reverse osmosis, (Feb.) 7
Revision of CPE productivity and cost indices (Aug.) 59
Rubber, thermoplastic (Sept.) 9

SAFETY:
developments in instrumentation (Mar.) 47
equipment for the process industries (Mar.) 61
in high-temperature heating systems *(HTS)* 54
valves, test rigs for (May) 69
Scientific and technological information (June) 33
Scraped-surface crystallisers (Nov.) 59
Separations, liquid membrane (Nov.) 5
Sintered metal filters (Dec.) 57
Slurry pipelining (Nov.) 9
SL/RN direct reduction process (Jan.) 55
Soda ash from caustic solution (June) 139
Solidification and mass transfer (Jan.) 59
Solvent extraction for metals (Aug.) 9
Static mixer (June) 119
Steelmaking from powder (Aug.) 7
Steel supply problem in the UK (Feb.) 91
Stress corrosion (July) 9
Synthetic detergent powders—*Process Survey* (April) 63

TABLETTING of pharmaceuticals (Aug.) 43
Test rigs for safety valves (May) 69
Thermal processes, flow graph models of *(HTS)* 49
Thermoplastic rubber (Sept.) 9
Thin-film evaporators, residence-time control in (Nov.) 63
Tied compensators in pressurised piping systems (Nov.) 72
Transporation of heavy loads (June) 9
Trends in:
compressor design (June) 123
copper hydrometallurgy (Jan.) 65
distillation technology (June) 115
Tubemaking by weld-forming (Sept.) 7

UK:
fabricators' product identification chart (Oct.) 70
growth of chemical industry (April) 5
steel supply problem (Feb.) 91
Ultrafiltration (Dec.) 49
USSR, chlorine and alkalis in (Sept.) 63

VALVES:
and pumps, demand forecasts for (Nov.) 7
for the chemical and process industries (April) 82
safety, test rigs for (May) 69
Vanadium additive (May) 9

WATER in the chemical industry (June) 142
Weld-forming for tubemaking (Sept.) 7
Weld overlays—high-nickel (Oct.) 55
Welding:
copper (Aug.) 7
friction (Nov.) 7

ZINC/lead forecasts (Oct.) 7

Author Index

ANGEL, R. F., 'Electric Surface Heating' *(HTS)* 41
Armstrong, A. J., 'Scraped-surface Crystallisers' (Nov.) 59
Arrowsmith, R. A., 'Special Chemical and Power Engineering Pumping Systems' (July) 77

BALLS, B. W., 'Progress in Process Control' (May) 65
Barak, M., 'Fuel Cells—Where Now?' (Sept.) 102
Barber, T. P., 'Special Filtration Techniques' (Dec.) 53
Barker, W., 'New Ni/Si Base Alloy for Sulphuric Acid' (Sept.) 57
Behrens, D., 'Scientific and Technological Information—the Challenge' (June) 33
Brain, R. C., 'Borosilicate Glass Process Plant' (Feb.) 101
Broadhurst, V. A., 'New Regulations for Flammable Substances' (Mar.) 55
Brooks, R. G., 'Heat Transfer across Rectangular Cavities' *(HTS)* 35
Brough, J., 'Pressure Drop Across Fibrous Filters' (Dec.) 68
Butler, D. H., 'Pumping of Coal Slurries' (July) 86
Butler, P. A., 'On-line Petrochemical Plant Control' (July) 88

CAFFIN, D. A., 'Pressure Drop Across Fibrous Filters' (Dec.) 68
Castle, J. F., 'Pumping of Lead' (July) 87
Clark, A. A., 'Pumping of Lead' (July) 87
Clark, C. R. N., 'Bursting Discs in Process Plant Protection' (Mar.) 43
Clements, A. J., 'Pump Breakdowns' (July) 75
Cooper, A., 'Trends in Distillation Technology' (June) 115
Cutting, G. W., 'Automatic Control of Batch Distillation Columns' (May) 55

DAHLGREN, A. I., 'Comparison of Heat Exchange Surfaces' *(HTS)* 31
Davis, J. K., *Viewpoint* (April) 11
Dixon, M., 'Heat Transfer across Rectangular Cavities' *(HTS)* 35
Duckworth, R. A., 'Synthetic Detergent Powders'—*Process Survey* (April) 63
Duncanson, L. A., 'On-line Control of Olefine Plant' (May) 49

ENGLISH, A., 'The UK Steel Supply Problem' (Feb.) 91
Evans, T. E., 'New Ni/Si Base Alloy for Sulphuric Acid' (Sept.) 57

FAIRHURST, W., 'Hydrogen Attack on Pressure Vessels' (Oct.) 66
Fanaritis, J. P., 'Safety in High-temperature Heating Systems' *(HTS)* 54
Fisher, E. H., 'Fluid Dynamic Design Problems of Mixed-flow Pumps and Fans' (July) 79
Forbes, F., 'Ultrafiltration' (Dec.) 49

GERHART, O., 'Automatic Pressure Filter' (Dec.) 67
Giger, A., 'Residence-time Control in Thin-film Evaporators' (Nov.) 63
Grace, J. R., 'Design of Fluidised Beds with Internal Baffles' (June) 127

HALFNIGHT, J., 'Applications of Epoxy Resins' (Feb.) 76
Hamer, J. A., 'Fabrication Industry Reforms Go Ahead' (Oct.) 69
Harrison, D., 'Design of Fluidised Beds with Internal Baffles' (June) 127
Hemy, G. W., 'Alkalis and Chlorine in the USSR' (Sept.) 63
Henry, J. A. R., 'Progress in Heat Transfer—Review of 1969 Literature' *(HTS)* 19
Hilliard, A., 'Graphite for Heat Exchange Plant' *(HTS)* 59
Hills, A. W. D., 'Mass Transfer and Solidification' (Jan.) 59
Hinde, J., 'Nickel and High-nickel Alloys' (Feb.) 61
Holden, H. A., 'Anti-corrosion Techniques' (Feb.) 84

JENSSEN, S. K., 'Comparison of Heat Exchange Surfaces' *(HTS)* 31
Jones, I. P., 'Plastic Composites in Chemical Plant' (Feb.) 63

KELSEY, G. D., 'Pumping of Coal Slurries' (July) 86
King, G. H., 'Automatic Analysis in Fertilizer Plants' (May) 62

LAITHWAITE, J.:
'Pressure Vessel Standardisation' (Oct.) 61
Viewpoint (Feb.) 11
Laskos, A. F., 'Tied Compensators in Pressurised Piping Systems' (Nov.) 72
Laurich, S. A., 'Crystallisation Problems' (Nov.) 55
Lawrence, J. B., 'Elastomers in Process Plant' (Feb.) 73
Lewis, R. I., 'Fluid Dynamic Design Problems of Mixed-flow Pumps and Fans' (July) 79
Liddle, C. J.: 'Optimisation of Simple Cyclic Processes' Part 1 (Mar.) 79; Part 2 (April) 103
Liddle, C. J., 'Hydrodynamics of Liquid/liquid Spray Columns' Part 1 (Nov.) 79
Linkson, P. B., 'Pressure Drop Across Fibrous Filters' (Dec.) 68

MARSHALL, V. C., 'Design of Agitated, Coil-in-tank Coolers' (April) 89
Miller, S. A.:
'Emulsion Polymers'—*Conference Report* (May) 88
'Oxidation in Organic Chemistry'—*Conference Report* (Jan.) 69
Monhemius, A. J., 'Trends in Copper Hydrometallurgy' (Jan.) 65
Morgan, V. T., 'Sintered Metal Filters' (Dec.) 57
Murray, I., 'New Industrial Heat Exchangers' *(HTS)* 27

NEWLING, D. O., 'Filament-wound Equipment for the Process Industries' (Feb.) 81

OTHMER, D. F., 'Water in the Chemical Industry' (June) 142

PAYNE, B. E., 'High-nickel Weld Overlays' (Oct.) 55
Pearsall, I. S., 'Pumps for Low-suction Pressures' (July) 83
Poll, A., 'Automatic Control of Batch Distillation Columns' (May) 55
Polley, G. F. E., 'Development of Helical Gear Pumps' (July) 85
Probert, S. D., 'Heat Transfer across Rectangular Cavities' *(HTS)* 35
Prosser, A. P., 'Mineral Processing'—*Conference Report* (Jan.) 51

RAGHAVAN, K. V., 'Pressure Vessel Design' (Oct.) 81
Redding, R. J., 'Safety Developments in Instrumentation' (Mar.) 47
Reinmuth, E. F., 'Oxo Synthesis Gas'—*Process Survey* (Aug.) 53
Reis, T., 'Butadiene Extraction'—*Process Survey* (Mar.) 65
Richards, J. W., 'Empirical Nomograms in Plant Start-up' (Aug.) 50
Ridgway, K.:
'Flow of Granular Material Down Chutes' (May) 82
'Tabletting of Pharmaceuticals' (Aug.) 43
Roots, W. K., 'Flow Graph Models of Thermal Processes' *(HTS)* 49
Rupp, R., 'Flow of Granular Material Down Chutes' (May) 82

SANDERS, R. E., 'Acrylic Fibres'—*Process Survey* (Sept.) 107
Schuchart, P., 'Pneumatic Conveying' (May) 76
Scobie, A. G., 'Automatic Analysis in Fertilizer Plants' (May) 62
Scobie, G., 'Pumps for Low Suction Pressures' (July) 83
Seelmeier, H., 'Trends in Compressor Design' (June) 123
Supp, E., 'Oxo Synthesis Gas'—*Process Survey* (Aug.) 53
Swallow, H. T. S., 'Powder Technology in Brickmaking' (Jan.) 75

TULUNAY, E., 'Flow Graph Models of Therma Processes' *(HTS)* 49

VALENTI, O., 'Finned Tubes in Fired Heaters' *(HTS)* 47
van den Berg, G. J., 'Oxo Synthesis Gas'—*Process Survey* (Aug.) 53
Virdee, G., 'Hydrodynamics of Liquid/liquid Spray Columns' Part 1 (Nov.) 79
Vollbrech, H., 'Pressure Vessel Codes' (Oct.) 77

WALLINGTON, J. W., 'Project Engineering Management' (May) 71
Watson, D., 'Computer Control of Grinding Mill' (Jan.) 45
Widmer, F., 'Residence-time Control in Thin-film Evaporators' (Nov.) 63
Wild, R., 'SL/RN Direct Reduction Process' (Jan.) 55
Williams, J. E., 'Fluid Dynamic Design Problems of Mixed-flow Pumps and Fans' (July) 79
Williams, K. J., 'New Ni/Si Base Alloy for Sulphuric Acid' (Sept.) 57
Witts, W. S., 'Polyester Fibres'—*Process Survey* (July) 55

YAZDANI, N., 'Design of Agitated, Coil-in-tank Coolers' (April) 89
Youle, P. V., 'On-line Control of Olefine Plant' (May) 49